an organ or region, the average dose received therein. Comparing the results obtained in the three types of treatment for three rings around the prostate or LQ at a distance of 1, 2 and 5 cm and a thickness of 2 mm, integral dose less the overall volume PTV. The latter were obtained V2, V5, V10, V20 and V30 assess areas of low doses. Were noted (UM) necessary to provide a dose of 2 Gy per session in each case. We performed a Wilcoxon test to compare the results of IMRT and VMAT treatments with 3DCRT, the statistical threshold was $p \leq 0.05$. The tests and statistical analyzes were performed with SPSS.
Results and discussion. Compared with 3D planning, IMRT has half integral dose values lower for all regions, the difference was statistically significant in all cases ($p \leq 0.05$). Volumes of low-dose behavior is the same, are lower in IMRT than 3DCRT. In the comparison between 3D and VMAT, half full dose is greater VMAT, significant difference in the case of prostate, and not significant for the LQ ($p > 0.05$). In the low dose volume is more complex, but the greater the VMAT V10, V20 and V30 in the LQ, which are less. Average number of UM necessary in IMRT is much higher than the other techniques, which should be taken into account by its relation to radiation leakage, reaching, in the case of LQ, to double that of 3DCRT (3DCRT, 362; IMRT, 731; VMAT, 472).
Conclusions. IMRT technique presents comprehensive dose reduction in healthy tissue, decreasing volumes irradiated at low doses, however, the number of monitor units increased almost double, which should be taken into account by radiation leak. VMAT presents integral generally higher dose and low-dose irradiated volume that the standard technique in the treatment of prostate, not be so in the case of LQ.

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Fast implementation of RapidArc® in a busy centre

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Introduction. In 2011, Centro Oncológico de Galicia (COG) clinically introduced RapidArc® (Varian Medical Systems) as a new radiation delivery technique for Volumetric Modulated Arc Therapy (VMAT). Purpose/objective: We will show our RapidArc® implementation experience as well as a summary of statistics of patients treated with RapidArc technique at COG in the first 2 years from its clinical implementation.
Materials and methods. Since 2011, about 350 patients were planned for RapidArc® including head and neck, prostate, pelvis with lymph nodes, stereotactic lung, cranio-spinal irradiation, etc. All plans were generated using Varian Eclipse Treatment Planning System (TPS) and delivered by a Varian Clinac DHX with MLC120 and on-board imager for image guidance. Pre-treatment quality assurance (QA) is performed by measuring the absolute planar dose distribution in the PTW Octavius and ArcCheck phantoms, in addition Portal Dosimetry is employed for QA.
Results. RapidArc delivery utilizes fewer monitor units (MUs) and is considerably faster than the corresponding Intensity Modulated Radiotherapy (IMRT) treatment plan while preserving treatment plan quality. Shorter treatment times have obvious advantages including better patient throughput, improved patient comfort and, possibly, less intra fractional motion. Average segmental field size or MLC leaf opening is much larger for RapidArc than Sliding Window IMRT, so RapidArc deliveries were expected to be more tolerant to variations in gantry rotation and MLC leaf position. Although the portal dosimetry was successfully validated, we are reluctant to use it as a sole means of patient QA as long as no gantry angle information is embedded.
Conclusions/discussion. RapidArc provided a significant sparing of OARs and healthy tissue without compromising target coverage compared to IMRT, with excellent results in difficult geometry target volumes. Since RapidArc was introduced in clinical practice, results are confirming expectations and the new modality has progressively replaced IMRT in most of the clinical indications at COG.

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Hypofractionated prostate treatment in a single VMAT arc

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Several publications have proposed during the last years hypofractionated treatment schedules in prostate cancer. Ratio for prostate carcinoma β/α. Such schedules have been possible because this comparable to, and even lower than, the surrounding late-responding normal tissues. This work shows the scheme adopted in our institution for hypofractionated prostate cancer treatment and plan evaluation based in DVH parameters. Monaco 3.10 (CMS, Elekta) is the inverse planning system used for volumetric arc therapy (VMAT). Treatments are delivered with an Elekta Synergy linac. Daily cone-beam CT corrections are performed as image-guided radiation = β/α therapy technique. The fractionation schedule, with the assumption that 1.5 Gy for targets and 3.0 Gy for OARs, consists on 28 fractions, delivering 2.5 Gy to prostate gland, 2.0 Gy to seminal vesicles and 1.8 Gy if lymph nodes are included. Dose–volume constraints are taken from QUANTEC reviews and they are adapted to our fractionation scheme accord-